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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,088	08/31/2001	Hans Van Der Laan	P 282855 P-0206.010-US	7680

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EXAMINER

NGUYEN, HUNG

ART UNIT PAPER NUMBER

2851

DATE MAILED: 09/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,088

Applicant(s)

VAN DER LAAN ET AL.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 31 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 31 August 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because:
 - a. they include the following reference sign(s) not mentioned in the description: reference M₁ and M₂ (see fig. 1). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "one spot formation device to form at least one spot of radiation from...in said apparatus" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The examiner respectfully requests the application to point out which element illustrated in the drawings is "one spot formation device to form...in said apparatus" as claimed.

Abstract

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

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The abstract of the disclosure is objected to because the following term should be omitted:

"comprises" in line 1. Correction is required.

Specification

4. The disclosure should be carefully reviewed and ensure that any and all grammatically, idiomatic, and spelling or other minor errors are corrected. For example, on page 13, line 11, reference to "sensor 14" should read - -sensor 16--. Correction is required.

Claim Objections

5. Claims 16, 18-26 are objected as being in improper form because the preamble of claims (for example, claim 16) are directed to an apparatus and the claims depends from a method claim. The metes and bounds of the claims can not be determined. Accordingly, the claims 16, 18-26 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 15 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 15, the wherein clause of "wherein at least one pinhole further comprises an element to provide...scattering and diffusion of radiation" is ambiguous and indefinite because firstly, "at least one pinhole" lacks proper antecedent basis in the claim and it is not clearly understood how the pinhole can perform the function as claimed.

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Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States;

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

9. As best the claimed subject matters are understood (see objection of the claims and rejection under 35 U.S.C. 112, second paragraph, supra). Claims are anticipated by references.

10. Claims 1-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sakai et al (U.S.Pat. 5,925,887).

With respect to claims 11-12, Sakai et al (fig.1) discloses an projection exposure apparatus comprising all structures set forth in the claims including: a light source for supplying a projection beam of radiation (1), a first object table (3) for holding a transmissive mask (2); a second object table (6) for holding a substrate (5) at a substrate plane; a projection optical system (4) for projecting an image formed on the mask onto the substrate; at least one spot formation device for forming at least one spot of radiation from at least a portion of the projection beam such as: a light blocking plate (21) having a central pinhole at the substrate plane or the transmissive mask (2) defining a spot or pinhole at the mask plane; and a sensor comprises a

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photodiode and charge couple device CCD 22 (see col.8, line 10-11) for measuring a spatial variation in intensity of defocused radiation from the at least one spot or an image thereof.

As to 13-15, 17, it is noted that the structure of a mask defining , pinholes , a non-transmissive areas, dots or stripes or diffracting elements such as grating, subsidiary dots, diffuser is well known per se and is considered as inherent teachings of the above mask (2).

The method claims 1-10 and 26 are seen to be inherent teachings in existence of the above apparatus.

11. Claims 1-3, 10-11, 13-15 and 26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nishigori et al (U.S.Pat. 5,846,678).

With regard to claims 1-3, 10-11, 13-15 and 26, Nishigori et al (fig.1) discloses an exposure apparatus comprising all basic features of the instant claims including a light source (1); a transmissive reticle (9) defining a pinhole; a projection optical system (10); a substrate (11) and a sensor for measuring a spatial variation in exposure amount of defocused radiation from the at least one spot or an image thereof.

12. Claims 1-26 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Irie et al (U.S.Pat. 6,118,516).

With respect to claims 1-26, Irie et al discloses an exposure apparatus and method comprising all of the limitations of the instant claims including: a light source (1) for supplying a projection beam of radiation , a first object table (9) for holding a transmissive mask (46) defining , pinholes , a non-transmissive areas, dots or stripes or diffracting elements such as grating, subsidiary dots, diffuser; and a second object table (13) for holding a substrate (5) at a substrate plane; a projection optical system (3) for projecting an image formed on the mask onto

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the substrate; at least one spot formation device for forming at least one spot of radiation from at least a portion of the projection beam such as: a light plate (36) having a central pinhole at the substrate plane or the transmissive mask (2) defining a spot or pinhole at the mask plane; and a sensor (48-49) for measuring a spatial variation in intensity of defocused radiation from the at least one spot or an image thereof.

Prior Art Made of Record

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

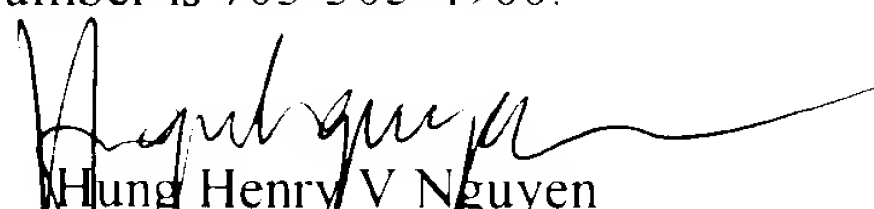
Sato (U.S.Pat. 6,333,777), and Takahashi (U.S.Pat. 6,040,894) discloses an exposure apparatus having sensor for detecting the angular intensity distribution on the substrate and Goolday et al (U.S.Pat. 6,353,231) teaches pinhole detection for intensity distribution.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

Hvn
9/9/02


Hung Henry V Nguyen
Examiner
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